

WHAT IS CLAIMED IS:

1. A method of manufacturing an optical transceiver, comprising:
 - combining an optical socket and an assembling object to be assembled with the optical socket, the optical socket including a fitting hole to mount an optical plug holding an end portion of an optical fiber;
 - mounting an optical head to photograph the assembling object in the fitting hole of the optical socket and to obtain an image of the assembling object exposed to the fitting hole and reference position information in a photographed image display screen;
 - detecting a difference between the image of the assembling object and the reference position information;
 - reducing the difference by moving the optical socket and the assembling object relative to each other based on the difference; and
 - fixing the assembling object and the optical socket.
2. The method of manufacturing an optical transceiver according to Claim 1, the assembling object including at least one of a light-transmitting substrate and a can package.
3. The method of manufacturing an optical transceiver according to Claim 2, the image of the assembling object including at least one of a wiring pattern, a positioning mark, a positioning hole, a light-emitting element, a light-receiving element, a lens, and a window of the can package which are formed on the assembling object.
4. The method of manufacturing an optical transceiver according to Claim 1, the reference position information being a marker representing a screen central position of the photographed image.
5. The method of manufacturing an optical transceiver according to Claim 2, the mounting including disposing an image-formation position adjustment lens to adjust an image-formation position of the image between the optical head and the assembling object so as to obtain the image of the assembling object.
6. An optical head, comprising:
 - a light-transmitting columnar body including one end surface, another end surface, and an alignment mark formed on the one end surface;
 - a housing provided on the other end surface of the columnar body;
 - an image pick-up element provided in the housing to convert a projected image to an image signal; and
 - a lens, provided in the housing, to project the one end surface of the columnar body onto the image pick-up element.

7. The optical head according to Claim 6, further comprising:
a half mirror provided between the image pick-up element and the lens; and
an illuminating light source to send illumination light to the columnar body via the half mirror.
8. The optical head according to Claim 6, further comprising a reflection plate having a reflecting surface to reflect incident light, the reflection plate being disposed between the alignment mark and the lens so that an optical axis of the lens is at an acute angle with respect to the reflecting surface.
9. The optical head according to Claim 8, the reflection plate being disposed so that the optical axis of the lens is at an angle of about 45 degrees with respect to the reflecting surface.
10. The optical head according to Claim 8, the reflection plate being formed integrally with the columnar body on the other end surface of the columnar body.
11. The optical head according to Claim 6, the columnar body being formed of a hollow cylindrical body.
12. The optical head according to Claim 6, the columnar body being formed of a bundle of optical fibers.
13. The optical head according to Claim 6, the columnar body being formed to have a lens for focusing light in an axial direction of the columnar body.
14. An alignment adjustment device for use with an object, comprising:
an optical socket having a supporting body and defining a fitting hole;
an optical head inserted into the fitting hole of the optical socket, the optical head photographing the object around a bottom portion of the fitting hole, and outputting an image of the object as a read signal together with information representing a photographing reference position;
an image processing device to process the read signal to detect a difference between the object and the reference position; and
a moving device to reduce the difference by moving the supporting body and the optical socket relative to each other according to the difference.
15. The alignment adjustment device according to Claim 14, the information representing the reference position being a marker indicating a screen central position of the photographed image.

16. The alignment adjustment device according to Claim 14, the information representing the reference position being a marker indicating a predetermined position on a screen of the photographed image.

17. The alignment adjustment device according to Claim 14, the information representing the reference position being an alignment mark formed on one end face of a columnar body in the optical head, the face facing the object inserted into the fitting hole of the optical socket.

18. The alignment adjustment device according to Claim 14, the object including at least one of a wiring pattern, a positioning mark, a positioning hole, a light-emitting element, a light-receiving element, and a lens which are formed on the supporting body.

19. The alignment adjustment device according to Claim 14, further comprising an image-formation position adjustment lens, disposed between the optical head and the object, to adjust an image-formation position of the image.

20. The alignment adjustment device according to Claim 19, the image-formation position adjustment lens being disposed on a surface of the object.